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Attacks on City Parks.

IT is a popular belief that few cities in the world rival Boston in the reverence with which she regards her traditions as well as her places and monuments of historic interest. It has been generally believed that the Common especially is an object of such profound local affection and noble civic pride that it is in no danger from the attempts at invasion and confiscation which constantly threaten the public grounds in other cities. It seems, however, that railroad companies and other corporations would be quite willing to possess and occupy as much of this famous ground as they can secure without paying for it, and we observe that some of the Boston papers are criticising the energetic protests which have been made against any desecration of it as mere sentiment. Now, without discussing the merits or demerits of any of the projects to divert the Common from its present use, it is worth while to say that reasons drawn from sentiment are not necessarily trivial or unworthy of consideration. A large part of the motives which control the best thought and action of the world might easily be stigmatized as sentimental. It is nothing but sentiment which glorifies a piece of bunting and invests it with such a sacredness that men are willing to follow it to death. There are certain acres of ground which may not be very attractive in themselves, and which certainly are quite inferior in beauty or value to a great many other parts of the earth's surface, and yet which have for each of us a charm which is found nowhere else in the world. This certainly is mere sentiment, but it is a part of our love for home just as devotion to a flag is part of and inseparable from the virtue of patriotism, and there is little doubt that the people who have such a regard for the Boston of history and tradition can be more safely trusted with the Boston of to-day and of the future than those who would feel no pang at the spectacle of horse-cars running across the Common or of Faneuil Hall removed to make place for a more modern and fashionable structure.

New York was settled half a dozen years before the Pilgrims landed at Plymouth, and what was known as "The Flat" in New Amsterdam, and later as "The Fields" in New York, and later still as "The Park"—for it is only in recent years that it has been styled the City Hall Park—was probably set apart for public use before Boston had a Common. If New York had as much local pride as smaller cities this bit of ground would be invested with quite as much sentiment as Boston Common, for the early history of the two spaces were much the same. "The Fields" were for generations a place for special muster and festivity, for bonfires and ox-roastings in times of rejoicing and thanksgiving, for indignation meetings and the hanging in effigy of oppressive officials when the people felt that they had some wrong to redress. Here was the rallying-point of the Sons of Liberty in the early days of the Revolution, and here was the camping-ground of the volunteers who came trooping to the city in 1861 on their way to the south. It is hardly necessary, however, to make use of appeals of this sort to the men who have determined to cover over another piece of this historic greensward with stone and tear down the only public building possessed by the city, which is at once satisfying as a work of art and venerable with the civic memories of a century. Of the New York of the past these men have no inherited traditions, no family memories. Their past is usually connected with Ireland or other lands across the sea, and although their regard for the city of their adoption may be genuine and strong, it is not the same kind of love as that which attaches men to the place of their birth. They do not shrink from accepting the control of the city's destiny for the future, or from assuming the burdens and emoluments of official responsibility, but the local history of New York and the memories that cluster about its antiquities have for them no inspiration.

There is no necessity, however, for confining our arguments to the realm of sentiment, powerful as such considerations are, and appealing as they do to the most generous passions and emotions of the human soul. These open spaces in densely populated cities have a value quite independent of history and tradition. Nor should there be any need of citing Boston Common or our City Hall Park as modern witnesses to racial instincts and customs which go back as characteristics of Teutonic people to the dawn of history. Every intelligent man must recognize the fact that if these breathing-places are to be preserved we must be on the alert to repel every attempt at curtailing them in the slightest degree. The stress and pressure of an expanding city are felt upon every foot of unoccupied ground within its limits. The measure of this pressure about the City Hall Park, for example, is seen in the piling up of buildings to such a height that within fifteen years the floor-space in this neighborhood has been more than doubled. In this city St. John's Park is obliterated. A large part of the City Hall Park has already been confiscated. Powerful corporations are making continued assaults upon the Battery. Central Park, so far, has been kept intact only by most determined resistance. The danger becomes most serious when the attacks are made by men of public spirit, who are organized for some purpose which may be worthy in itself, and which, by its apparent present importance to some special interest, blinds its promoters to the broader use and more comprehensive value of park-space to all classes and every interest. Even where public sentiment in favor of preserving these open spaces is strongest there is always the danger that the sober sense of the community will be prostrated before a sudden gust of enthusiasm for some dazzling enterprise, so that the rights of the people are sacrificed before they realize what has been lost forever.

These dangers are so certain to recur with ever-increasing force as our cities grow that we once proposed the formation of an Association for Park-protection, which should always be prepared with organized resistance against these assaults. We do not care to enlarge upon this subject here, but if

there were in Boston, New York and other cities voluntary leagues of citizens whose names would command respect and who were prepared with a permanent secretary and staff, not only to sound a warning against approaching danger, but to help to give effective expression to public opinion, such associations would accomplish much toward assuring the integrity of many urban parks. A few rods less of open space in the Common or in the City Hall Park may appear of no great importance, even to the more thoughtful residents of Boston or New York; but really the least curtailment of either of these pleasure-grounds would be a national calamity. If the rights of the people are surrendered in one instance, it establishes a precedent for a still further surrender, and the second attack would succeed much more easily than the first. It is not only that New York and Boston would ultimately lose a park or a portion of a park, but every foot of park property in every part of the union would be rendered even more insecure than it already is. It would strengthen every attacking force and weaken every defense. It would discourage and paralyze the efforts of far-seeing people all over the country who desire to give land for park purposes, and who are studying to meet the demand for open spaces which is sure to arise in the cities of the future. Every official who is entrusted with the administration of city parks has an obligation which ought to be as binding as a written covenant to hand down this property, without impairment, to his successors. And we hope and believe that public sentiment both in Boston and New York, kindled and strengthened by every consideration of patriotism, local pride and enlightened self-interest, will avail to save for coming generations the two oldest pleasure-grounds in the country.

A statue of President Arthur, executed by Mr. Keyser for a committee representing a number of the prominent citizens of New York, was recently passed upon by the Advisory Art Committee of the Park Department. These experts recommended that the statue should not be accepted by the Board, because it did not possess sufficient artistic merit. It is plainly the duty of the Park Board to exclude, rigorously, every work that is not so good that it will both adorn the spot where it stands and be an education of public taste, no matter whom it may commemorate or by whom it may be offered. It seems a pity that well-intentioned labor, and money given in a patriotic spirit, should be wasted; but the worst possible waste is to deface the open spaces of the city with works which ought never to have been made. A careful consideration of the public's interests and a studious determination not to let private interests outweigh them is the only rule for public officials to follow. The advisory art committee are men of the first rank. Competent artists are too rarely produced by public officials, and the Park Board does itself credit by accepting as final the judgment of such a tribunal.

Another Columbus monument, presented by our Spanish residents, is on its way from Spain. This, too, must be passed upon by the Board's Advisory Committee, and this, too, should be excluded from the Park unless it proves a worthy ornament. If it does, its site should be selected with the greatest care, for it is a large fountain that will have a marked effect upon the general aspect of its surroundings. It is, indeed, time that the minds of our citizens should be cleared of the idea that any statue may be put in our parks, and that any site may be petitioned for, in any case. The projectors of the Arthur monument not only asked for the acceptance of their figure, but also that it might be placed in the Plaza Circle, at the junction of Fifth Avenue and Fifty-eighth Street, which is the very finest site for a monument in all New York. This site should be scrupulously reserved until some work of entirely appropriate size and character, and of exceptional artistic worth, like the monument designed by St. Gaudens in memory of Sherman, may be obtained by the city.

On Broad Top.—III.

THE abandoned farms on Broad Top form a very insignificant portion of its topography, but offer such a variety of attractions that as objective points for walks and hunting, or photographic expeditions they are unrivaled. One, now almost covered with a growth of beautiful White Pines, occupies a commanding position on the outer slope of the mountain, at the head of the projecting ridge that separates Wells from the euphoniously named Groundhog Valley. Another, also on the outer slope, lies upon natural terraces which overlook the broken outlines of the mountains along the Raystown Branch. Others within the mountain's rim are upon the upper slopes of the ridges, and have almost become part of the forest again; while others on the leveled crest show broad open sweeps of grassy fields and meadows.

All differ not only in site, but in the vegetation fast filling their fields, and concealing, but not obliterating, their roads. It is curious how these unused and little frequented roads retain their character; many are untrodden for years at a time, and quite hidden by overhanging shrubbery, but a little cutting soon restores the path to view, grass-grown and mossy, perhaps, but obviously and distinctly a roadway. A confusing network of bark and timber roads crosses the township roads and old farm roads, and except by careful remembrance of landmarks, and constant watchfulness for blazes, it is the easiest thing in the world to lose one's way. While it is always possible in this country to return on a different road than the one taken at the start, such a return is often quite involuntary, and may mean an extra journey from one to ten miles long.

A very beautiful forest-road leads to an abandoned farm lying almost at the head of the valley formed by Trough Creek. It is included in the lease of one of the occupied farms, but of its half-hundred or more acres only one field is ever planted; the rest are used for pasturage, and some have been so denuded of their soil that only weeds and vines find lodgment, but in their autumn coloring these give a transient beauty to the fields, far exceeding that of more useful days.

Our road to the "upper place" leads past the barn, where the men are threshing buckwheat with flails; October for them is not an autumn holiday, but means hard work, made harder by their utter lack of system. We pass on from the noise and dust into the grateful quiet of the woods, always beautiful, but now inexpressibly so with the sunshine transfiguring each leaf and branch. In less than half a mile the road crosses three little streams, now mere threads, and almost invisible between their fringed border of Ferns. The Adiantums and Dicksonias are especially numerous and fine; the latter have marked this path for their own. They crowd into the foot-way, surround fallen branches, and have carpeted the forest-floor with exquisite combinations of ivory and green. Some beds show pure ivory tones throughout, others have only a few tips, or perhaps half a frond blanched, while others retain unbroken the delicate yet vivid green of midsummer.

As we approach the farm the road widens, and is quite grass-grown as it rises gradually through a beautiful grove of Oaks and Chestnuts to a plateau at the lower extremity of the fields. From this point we have vistas down the road we have just come, and between the trees growing in the fence angles, up the surface of the fields to where their summit touches the horizon. Botrychiums are drooping in the grass at our feet, and across the path Medeolas lift their crimson throats above a guard of briers. Beyond us our path lies through a grassy avenue, framed by Maples and Chestnuts, whose interlaced branches form a flamboyant arch.

We pass from this arch into an open space, where formerly the house stood. All that remains of what was once a home is a tumbled heap of stones, a portion of the great stone chimney, now covered with a tangle of vines. Butternut-trees edge the forest and outline the fields; they have a ragged, uninteresting look on dull days, but in brilliant sunshine the bark of the older ones has an ebony and silver effect. One of these trees beside a path leading to the barn is very striking, with its massive trunk and strong, bold lines. Near by, the frame of the old log-barn is standing, though apparently with a short lease of life, in a field overgrown with thickets of young trees.

Our way through it to the upper fields leads across open spaces dotted with Starry Campion, past a group of Hickories showering golden leaves upon an immense bed of Aspidium, bordered by Chelone, and over a tangled mat of Lycopodium to the field above, where Yellow Pines struggle for supremacy with Thorn Locusts.

On we climb until, at the upper level of the "top fields," we are on the dividing ridge of the mountain, all the streams we have passed emptying through Trough Creek into the Juniata,

while on the other side of the ridge they run into the Raystown Branch. South of us, across the edge of the barrens (see page 89), the forest hides a little orchard set in a meadow of turf, whose beauty is somewhat marred by the untiring efforts of a small, black animal, known in the vernacular as a "hock." The gnarled old trees bear apples that in most instances are to be avoided, but one sort, known as "Johnny or Jenny," with small scarlet and white striped fruit, combines beauty and goodness in a remarkable degree. From our summit we look down the length of the broad, shallow depression where Trough Creek flows north, and beyond that to the great local landmark, Grave Mountain. Except for a few clearings, nothing but forest is before us, most of it composed of deciduous trees, though the upper levels are outlined by belts of Pines. It is quite noticeable that the Pines, as well as the lateral ridges, all run diagonally from the axes of the two main ridges.

Around to the right there is a break in the forest where the "Pinnacle Farm" lies, its stone chimney rising unbroken from the fallen frame-work of the house. From the Gerardias, Asters and Blazing Stars trying to cover the stony field at our feet to the Pines serrating the farthest ridge, the whole landscape is a harmony of the most glorious color—color so pure in tone, yet so exquisitely blended, with the Pines giving their minor chords, that, as one realizes the brevity of this pageant, it is impossible not to wish it might be always October.

Harrisburg, Pa. *Mira Lloyd Dock.*

Are the Varieties of Orchard-fruits Running Out?

PROFESSOR BAILEY'S thoughtful paper on this subject, recently read before the Western New York Horticultural Society, is here reproduced almost entire:

Two years ago I presented before this society a discussion upon the general question of the running out of varieties; in which I reached the conclusion that plants grown from seeds constantly tend to vary or run out, as also do those which are grown from buds of highly developed or abnormal parts, but those grown from buds of normal or natural parts, as the orchard fruits, remain permanent. Running out does not necessarily mean the deterioration of a variety, but simply a change or modification which obscures its identity; but inasmuch as varieties of orchard fruits, being propagated by buds, do not vary or change to any extent, the discussion now in hand really turns upon the question as to whether varieties may not wear out or be limited in duration without having passed by variation into other forms. Is the Esopus Spitzenburg Apple, for instance, approaching the limit of its life?

The most direct means of approaching the subject is through the historical method. What proportion of the varieties cultivated fifty or a hundred years ago are now known? If any of these old varieties are not cultivated at the present day, what are the causes of their disappearance? In 1806 M'Mahon catalogued fifty-nine varieties of Apples for cultivation in North America. Of these, twenty-one were offered for sale in 1892. In 1817 William Coxe gave a list of one hundred kinds of the best Apples for cultivation in North America, of which forty were still offered for sale in 1892. In 1845 A. J. Downing described 190 varieties of Apples, of which eighty-four are now offered for sale. That is, from sixty-four to fifty-four per cent. of these varieties have disappeared within a century. Why?

1. Have they disappeared because of age?

We do not know that any type or species of animal or plant is pre-limited in duration. It is true that many of the earlier forms of life have wholly disappeared, but this disappearance may have been due to change of physical conditions to which they were subjected, or to defeat in the struggle for existence, rather than to a wearing-out or predetermined death. But, even if species do wear out, the deterioration is so slow that it could not be detected in many centuries, probably; and, it is fair to assume that any such tendency would be much overbalanced by the protecting care which man extends to all species or varieties which please him.

But there are now sufficient records to show that mere age of a variety counts for little or nothing. The White Jennetting Apple was described as early as 1660 by Evelyn, and it is still grown in England, and Downing described it fully in 1852. The Ribston Pippin, which is probably the most popular Apple in England, and which is well known in America, is probably about 200 years old. Its history is clear for more than a century, at least. The White Doyenne, or Virgaleau Pear, is over 200 years old, and although this variety has nearly disappeared in America, it has not run out, as we shall see. The Bartlett Pear originated in 1770. The Green Gage Plum was mentioned as early as 1629, and it was probably then an old variety. Similar instances are frequent, especially in European fruits. It is obviously a fallacy to say that certain varieties, which were grown a hundred years ago, have disappeared because of their age, when certain other varieties of equal age are still in profitable cultivation. About two-thirds of the varieties which M'Mahon catalogued in 1806 appear to have been lost, but the other third, which still persists, contains some of our best Apples. These persistent varieties are: Early Harvest, Summer Queen, Margaret, King, Bough (or Bow), Woolman's Harvest, Golden Pippin, Summer Pearmain, Fall Pippin, American Pippin, Orange, Vandevere, Newtown Pippin, Monstrous Pippin, Holland Pippin, Rhode Island Greening, Swaar, Yellow Bellefleur, Harrison, Hughes' Virginia Crab, Cooper's Russeting. All these facts show either that age does not determine the virility of a variety, or that varieties differ widely in this respect. If we can find satisfactory reasons for the disappearance of these lost varieties, we shall be forced to conclude that varieties of orchard fruits do not wear out with age.

2. Do varieties disappear because they are ill-adapted to new environments?

Most varieties are more or less local in their adaptations; that is, they are not suited to cultivation over wide areas which comprise great differences of soils and climates. It must follow, therefore, that those varieties which are most local and which must require most skill in cultivation, must constantly tend to disappear, because they cannot compete with the more cosmopolitan sorts which nurserymen find it more profitable to propagate. There is a constant selection among the varieties of fruits, which eliminates the least adaptive kinds. This fact is remarkably well illustrated in the relative behaviors in America of the old varieties of European and American origin. In 1817, as I have said, William Coxe made a list of 100 varieties of Apples especially commended for cultivation in North America. Of these, thirty-two are known to be of European origin and fifty-seven of American origin. In 1892, forty of these varieties were sold by American nurserymen, but thirty-three of them belong to the American group and only seven to the European group. In other words, only forty per cent. of the Apples of American origin in Coxe's list have been lost, while seventy-eight per cent. of the European group have disappeared. In this instance, therefore, very many of the varieties appear to have passed out of cultivation because they were not well adapted to American conditions. Coxe also listed sixty-five varieties of Pears in 1817. Only four of them are now in cultivation, and these are all of American origin.

In 1845 there were 190 varieties of Apples in North America. Eighty-seven of these are known to be of European origin and ninety-three of American origin. At the present time, seventy-seven per cent. of the European lot have been lost in America, against only thirty-three per cent. in the American lot. This shows that with the greater number of varieties which had come into use since the time of Coxe and from which selections had been made, there had appeared more American than European varieties of merit for American conditions. In other words, American varieties are better adapted to American conditions than the European varieties are; and this accounts for the disappearance of many of the Apples in the old lists. There has been a constant tendency from the first toward the disappearance of the Apples, Pears, and all other fruits of European origin, and toward the persistence of American kinds. There is a like tendency, very strongly marked, toward the disappearance of New England Apples and other fruits from the prairie states, and a corresponding increase in the percentages of fruits original to those regions. If a certain variety, therefore, as the Baldwin, disappears from large portions of a western state, this fact is an illustration of lack of adaptability to those conditions rather than of a running out. Many of the varieties which are commonly thought to have run out, are now and then found thriving in perfection in some isolated localities, showing that they still retain their pristine vigor. I may illustrate this point by the fact that many of the novelties of any year or decade fail to become popular because they are not adapted to a wide range of conditions, and some of them are almost immediately lost from this reason. This is a forcible illustration that disappearance and running out are very different matters. I am becoming more and more convinced that the study of the adaptations of varieties to conditions of soil and climate and other environments, is one of the most important subjects with which the horticulturist has to do, and that the neglect of it in the past has been a serious hindrance, and is a source of much confusion now that the least adaptive varieties are being sifted out.

Notes on the Forest Flora of Japan.—VI.

THE chiefly tropical family, Ternstrœmiaceæ, which, in North America, is only represented by Gordonia and Stuartia, trees and shrubs of the southern states, in Japan appears in eight genera, in which are a number of interesting plants, although none of them become very large trees. Of these, Camellia Japonica is horticulturally the most important, for its relative, Camellia theifera, the Tea-plant, is evidently a Chinese or Assam introduction and not a native of Japan. In southern Japan the Camellia is a common forest-plant from the sea-level to an altitude of 2,500 feet, on the east coast growing as far north as latitude thirty-six and nearly two degrees further on the west coast. Here it is a dwarf bush only two or three feet high, although where the soil and climate favor it the Camellia becomes a tree thirty or forty feet tall, with a handsome straight trunk a foot in diameter covered with smooth pale bark, hardly distinguishable from that of the Beech. In its wild state the flower of the Camellia is red and does not fully expand, the corolla retaining a cup-shape until it falls. In Japan, certainly less attention has been paid to the improvement of the Camellia than in Europe and America, although double-flowered varieties are known; and as an ornamental plant it does not appear to be particularly popular with the Japanese; it is sometimes planted, however, in temple and city gardens, especially in Tokyo, where it is not an uncommon plant and where beautiful old specimens are to be seen.

Tsubaki, by which name Camellia Japonica is known in Japan, is more valued for the oil which is pressed from its seeds than for the beauty of its flowers. This oil, which the other species of Camellia also produce, is used by the women in dressing their hair and is an article of much commercial importance. The wood of Camellia is close-grained, moderately hard, and light-colored, turning pink with exposure; it is cut into combs, although less valued for this purpose than boxwood, and is manufactured into numerous small articles of domestic use. Sansan-kuwa, Camellia Sasanqua, a small bushy tree of southern Japan and China, is perhaps more commonly encountered in Japanese gardens than Tsubaki, and in the first week of November it was just beginning to open its delicate pink flowers in the gardens of Nikko, although the night temperature was nearly down to the freezing-point.

Ternstrœmia Japonica and Cleyera ochnacea are small bushy trees scattered from India to southern Japan, where they are considered sacred by votaries of the Shintô religion, and are therefore planted in the grounds of Shintô temples and in most private gardens. The evergreen foliage of these two plants is handsome, especially that of Ternstrœmia, but the flowers and fruit possess little beauty, and they owe their chief interest to their association with Japanese civilization.

Eurya Japonica is another member of the family, of wide range from Ceylon and India to China, the Fejee Islands and Japan, where it is exceedingly common in the southern islands and in Hondo as far north at least as the Hakone Mountains. It is usually a shrub only a few feet high; but I saw a specimen in the woods surrounding a temple near Nakatsu-gawa on the Nagasendo which was fully thirty feet in height, with a well-formed trunk nearly a foot in diameter. Eurya, although not particularly handsome, is interesting from the color of the leaves, which are yellowish green on the upper surface and decidedly yellow below.

Stuartia is represented in eastern America by two handsome shrubs, one an inhabitant of the coast region of the south Atlantic states, and the other of the southern Alleghany Mountains; in Japan there are two and, perhaps, three species. Of these, Stuartia monadelpha, which inhabits also central China, appears to be a southern plant only; at any rate, I saw nothing of it in Japan, nor of the little-known Stuartia serrata of Maximowicz. The third species, Stuartia Pseudo-Camellia, is common in the Hakone and Nikko Mountains between 2,000 and 3,000 feet elevation, where it is a most striking object from the peculiar appearance of the bark; this is light red, very smooth, and peels off in small flakes like that of the Crape Myrtle (Lagersrœmia); to this peculiarity it owes its common name, Saru-suberi, or Monkey-slider. Stuartia Pseudo-Camellia is often a tree of considerable size; on the shores of Lake Chuzenji we measured a specimen whose trunk at three feet from the ground girted six feet, and which was upward of fifty feet high; and specimens nearly as large are common on the road between Nikko and Chuzenji. The flowers of this tree, which resemble a single white Camellia, are smaller and less beautiful than the flowers of our coast species, Stuartia Virginica, but are larger than those of the second American species, Stuartia pentagyna, a handsome plant which is not made enough of in our northern gardens, where it is perfectly hardy and one of the best of the summer-flowering shrubs. Stuartia Pseudo-Camellia was sent to America nearly thirty years ago by the late Mr. Thomas Hogg, and it appears to have flowered in the neighborhood of New York several years before it was known in Europe, where of late it has attracted considerable attention.* In New England this Japanese species appears perfectly hardy, and two years ago flowered in the Arnold Arboretum.

Stachyurus præcox, another Japanese member of this family, is still little known in our gardens, although it was one of the plants sent by Mr. Hogg to New York soon after the opening of Japan to foreign commerce. It appears hardy in the neighborhood of New York, as there is at least one plant established in Prospect Park, on Long Island. In Japan Stachyurus is exceedingly common in the mountain-forests and at the sea-level from southern Yezo to Kyushu, appearing as a tall graceful shrub with thin semi-scandent branches and ovate-lanceolate acute leaves. In summer or early autumn it forms axillary spikes of flower-buds two or three inches long, and in very early spring, before the appearance of the leaves, these buds expand into bell-shaped pale yellow flowers; these are not more than a third of an inch long, but they are produced in great profusion, and as they appear so early in the season Stachyurus will probably prove a popular plant if it is found to flourish in cultivation. The genus is represented in central China and in the Himalaya Mountains with a second species described as a small tree.

The genus Actinidia, woody climbers of the Himalayas and eastern Asia, appears in Japan in three species, of which two at least are exceedingly common, and are conspicuous features of the mountain vegetation. Of these, the largest and most common, especially at the north, is Actinidia arguta; little need be said of this handsome plant, as it is now common and well-established in our gardens, where it grows with great vigor and rapidity, and where it is one of the best plants of its class. We have heard a good deal of the value of the fruit of this plant, which is depressed-globular, an inch across, and greenish yellow; it is eaten in Japan, but the flavor is insipid, and its merits appear to have been exaggerated. It was offered for sale in the streets of Hakodate in great quantities, but, of course, green and hard, as the Japanese use all their fruit before it ripens.

Actinidia polygama, although it inhabits Manchuria and Saghalin, and is common in the forests of Hokkaido, is more abundant than those which cover the mountains of central Japan; it is a more slender plant than Actinidia arguta, with elliptical, acute, slightly serrate, long-stalked leaves. The fruit is an inch and a half long, half an inch broad in the middle and narrowed at the two ends; it is canary-yellow, rather translucent, soft and juicy, with an extremely disagreeable flavor. Actinidia polygama does not, like Actinidia arguta, climb into the tops of tall trees; its weaker stems tumble about and form great tangles sometimes twenty feet or more across and fifteen or twenty feet high. The most remarkable thing about this plant is that in summer the leaves toward the ends of the branches

*See *Rev. Hort.*, 1879, t. 430.—*Gard. Chron.*, ser. 4, iv., 187, f. 22.—*Bot. Mag.*, t. 7045.

become pale yellow either over their entire surface or only above the middle, not because they are drying up or ripening but apparently from an insufficient supply of chlorophyll. The effect that the plants produce at this time is curious and interesting, and when seen from a distance growing on a mountain-side or on the banks of a stream they appear like huge bushes covered with pale yellow flowers.

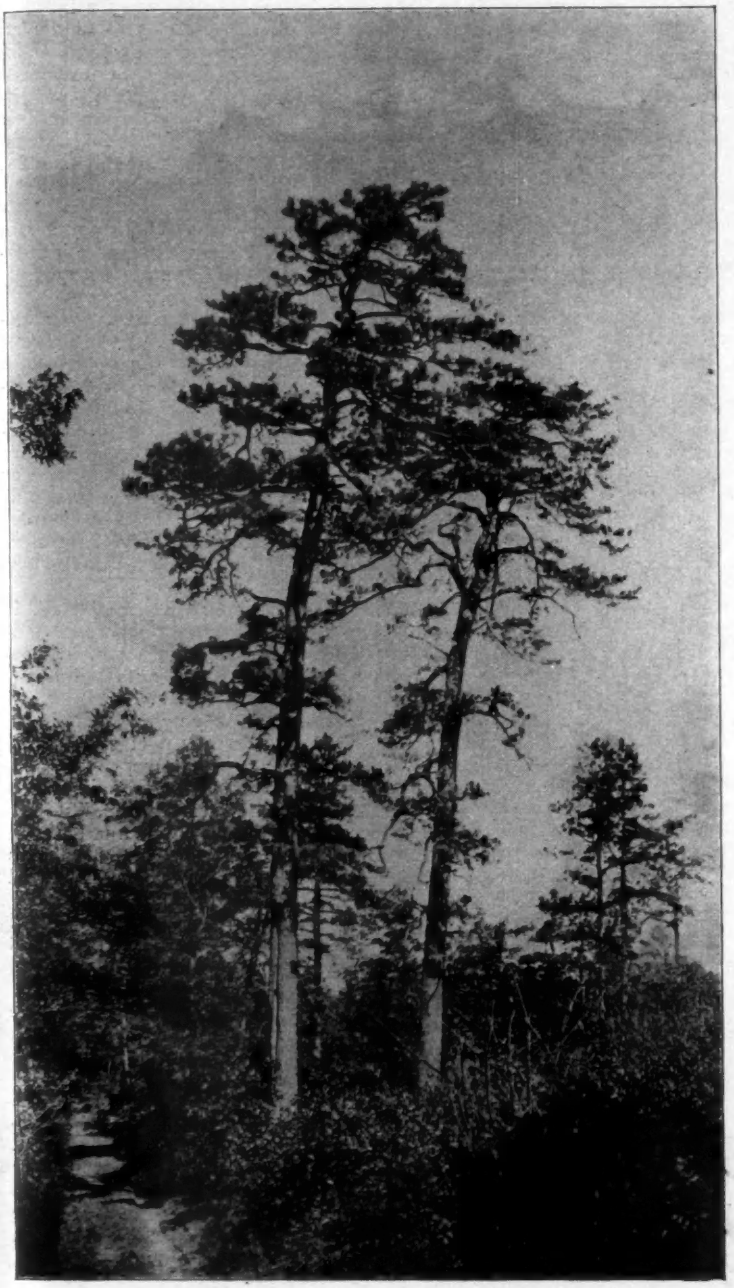

Fig. 15.—The Edge of the Barrens, Broad Top, Pennsylvania.—See page 86.

This fine plant is still little known in cultivation, but if it flourishes in New England like Actinidia arguta it will form a most valuable addition to our shrubberies.

Actinidia Kolomikta, which is found also in Manchuria and northern China, is much less common in Japan than the other species. I saw it only on the rocky cliffs of a hill near Sapporo, where it was growing with Rhododendrons and Menziesia, and where it was a delicate, slender vine, with stems only a few feet in length. Unfortunately, there were no seeds to be obtained, and I am doubtful if this species has ever been introduced into our gardens, although the name often appears in nurserymen's catalogues. *C. S. S.*

Foreign Correspondence.

The New Plants of 1892.—III.

THE plants of interest among those introduced by Continental growers, and described in foreign periodicals, are sufficiently numerous to be dealt with in an article by themselves. As in the case with the plants introduced last year into English gardens, Orchids predominate both in number and interest. A few of them, such as Cattleya Alexandræ and Epidendrum Godseffianum (Capartianum), are both foreign and English introductions. The majority of the following we owe to the enterprise of the Messrs. Linden, L'Horticulture Internationale, Brussels:

Bulbophyllum anceps, *Lindenia*, t. 351, is an elegant little Bornean species with stout rhizomes, large flattened pseudo-bulbs, bearing each a single oblong fleshy leaf and loose racemes of flowers, which are one inch across, creamy yellow, striped and spotted with maroon-purple.

Cirrhopetalum Amesianum, *Lindenia*, t. 314, is a pretty little species with umbels of from six to ten flowers, each an inch and a half long, and colored yellowish white and bright rosy purple. It is a native of Java.

Epidendrum Mantinianum (Linden), a dwarf species with large solitary white and purple flowers, and E. Ortgiesii (St. Petersburg Botanic Garden), which is in the way of E. amabile, with rather large flowers, colored red and white, with a purple lip, are noteworthy additions to this large, varied genus.

Eulophiella Elisabethæ, one of the most interesting and distinct of recent introductions, is described on pages 304 and 510 of the last volume of GARDEN AND FOREST. It was introduced by the Brussels firm, who do not divulge its habitat, and is dedicated to the Queen of Roumania.

HYBRID CYPRIPEDIUMS.—Six of these have been raised on the Continent, and two deserve mention here. C. Albertianum was shown in flower by Monsieur Jules Hye at Ghent last November, and was awarded a gold medal. Its parents are C. Spicerianum and C. insigne, var. Wallacei, and it is, of course, very near C. Leeanum. The other hybrid is C. La France, raised from C. niveum and C. nitens.

Coryanthes macrocorys is a Peruvian species, introduced by L'Horticulture Internationale, Brussels, and figured in *Lindenia*, t. 342. It has large Stanhopea-like flowers, creamy white, spotted and dotted with purple. If the several known species of this genus were less difficult to flower they would be much more in favor than they are at present. There are few Orchids with flowers more remarkable in form than these.

Odontoglossum Pescatorei, var. Lindeniæ, *Lindenia*, t. 329, is a beautiful addition to the many fine varieties we already possess of this most useful garden Orchid. It is remarkable for the large blotch of chestnut-brown on each of the flower segments, including the lip.

Peristeria Lindeni, *Lindenia*, t. 328, is an attractive species in the way of P. pendula, with flowers globular in shape, one and a half inches in diameter and colored pale green and purple, mottled with a darker shade of the same color. They are borne on a short raceme, which is represented as erect.

Stanhopea Moliana, *Lindenia*, t. 331, is a large-flowered species, similar to S. Wardii, white-spotted and mottled with reddish purple. It is said to be Peruvian.

Stauropsis Warocqueana, *Lindenia*, t. 319, is a large, Vanda-like plant, from New Guinea, not unlike the old V. gigantea, now called Stauropsis, but with large-branched racemes of flowers an inch in diameter and colored buff-yellow with brown spots.

Stove and Greenhouse Plants.—Most of the new plants which may be classed under this heading are chiefly remarkable for their ornamental leaves.

Alocasia Dussii (Dammann & Co.) has large olive-green leaves with red nerves and petioles. Ampelovitis Romanetti is described as a vine with lobed leaves, glaucous on the under side, and long bunches of black grape-like fruits. It is probably Chinese.

Costus Lucanusianus is a new species from the Cameroons and is figured in *Gartenflora*, t. 1379, where it is shown as a tall-stemmed plant with lanceolate leaves and terminal heads of yellow and purple flowers.

Crinum Abyssinicum, C. Yemense and C. yuccæfolium are three white-flowered species which have been introduced from Africa and are offered by Messrs. Dammann & Co. Cyrtosperma ferox (Linden), from Borneo, is not unlike C. Johnstonei, which used to be called an Alocasia, and is remarkable for its spiny leaf-stalks and sagittate blades. Dichorisandra angustifolia (Linden), from Ecuador, has prettily variegated foliage, and is not unlike D. vittata, but the leaves are more distinctly lined with white and are purple beneath. D. musaica, var. gigantea (Linden), has stems two feet high and leaves nine inches long by five inches broad. Dieffenbachia meleagris, D. olbia and D. picturata are three new Lindenian introductions which may be recommended to growers of ornamental-leaved Aroids, the best of them being the first-named, which has the leaf-stalks very prettily marked with transverse zigzag lines.

Heliconia spectabilis (Linden) is probably the same as H. metallica, a handsome foliage-plant for the stove, with long lanceolate leaves, dark green above, purplish beneath.

Impatiens Micholitzii is a new introduction from New Guinea and described as a dwarf branching plant with white and rose flowers. Labisia smaragdina (Linden) is a Bornean plant, with a short stem and numerous lance-shaped obtuse leaves of a pleasing deep green color and panicles of small pink flowers. It is very like an Ardisia. Musa Martini is described by Monsieur André as a handsome species which may be grown in as low a temperature as M. Ensete. It has reddish leaf-stalks and veins and rose-colored flowers. It was introduced into France from Teneriffe. There is a figure of it in the *Revue de l'Horticulture Belge*, 1892, p. 107.

Peperomia metallica (Linden) is a pretty addition to the variegated plants of this genus, its lanceolate leaves being dark green, striped with gray above and tinged with red beneath. It is Peruvian.

Senecio sagittifolius is one of the most interesting species in the enormous genus Senecio, and, moreover, it is one that is likely to take a prominent place among garden-plants. It was discovered in Ecuador by Monsieur Ed. André, and introduced by him into France. He also figured and described it in the *Revue Horticole*, 1892, t. 16, 17. Young plants of it are now offered by Monsieur Bruant, of Poitiers, who publishes a figure of it in his plant catalogue for this year. It has huge green radicle leaves, three feet or more long and about a foot wide, sagittate, with toothed margins and a curiously crested midrib. These leaves are arranged in a rosette, from the centre of which is developed a stem, eight to ten feet high, clothed with erect lanceolate leaves, and bearing at the top an enormous corymb of Marguerite-like flowers, which are white, with a yellow disk, and measure an inch and a half across. A specimen grown in the open air in Touraine last summer developed leaves a yard long. It was removed into a temperate house for the winter, where it produced a stem eight feet high which bore a corymb of 140 flowers. A young plant of it has grown rapidly in a warm greenhouse at Kew. It appears to push up suckers freely.

Tradescantia Reginæ and T. superba are two Lindenian introductions from Peru. They have prettily marked foliage, the former gray-green and purple, with transverse lines of dark green, the latter dark green, with whitish stripes along the midrib. Smilax argyrœa, from Bolivia (Linden), is a pretty little stove-climber with prickly stems and small lanceolate leaves, green, attractively spotted with white. It is an improvement on S. maculata.

Hardy Herbaceous Plants.—Gypsophila Raddiana. This is a new species which has been introduced from Persia into the Botanic Gardens of St. Petersburg, where it flowered last year, and was figured in the *Gartenflora*, t. 1365. It is dwarf and tufted in habit and has pink flowers. The Gypsophilas are most useful plants for the rockery or border and as a source of cut flowers. Iris Madonna (Dammann & Co.) is described as a half-hardy evergreen species from Arabia, with large lilac-blue flowers. Ixiolirion macranthum and I. Sintenisi are two of Herr Max Leichtlin's introductions, and are said to have large blue-purple flowers. Podachænium Andinum is a large-leaved composite from the Andes of Colombia, and is recommended by Monsieur André for sub-tropical bedding. It bears lax corymbs of white and yellow Daisy-like flowers. Possibly it is not hardy. Primula calycantha, from Yun-nan, is described by Herr Max Leichtlin as having smooth gray-green leaves and numerous reddish blue flowers in umbels.

Hardy Trees and Shrubs.—Acer palmatum, var. Alkii, is figured in the *Gartenflora*, t. 1363, and described as a handsomely variegated variety. A. Trautvetteri, var. irythrocarpa, from the Caucasus, is remarkable for its red fruits. It is cultivated in the arboretum at Zoschen.

Cytisus schipkænsis is another Zoschen plant, introduced from the Balkan Mountains. It is a compact shrub, only about a foot high, with numerous white flowers.

Fraxinus raibocarpa is a species from central Asia, which has been known in botanic gardens several years, but hitherto has not been happy in cultivation. It is a tall tree of graceful habit, with few and rather small leaflets and is remarkable for its sickle-shaped samaræ. It was introduced to St. Petersburg and described by Dr. Regel.

Prunus præcox is an early-flowering seedling from P. Japonica (Sinensis), var. sphœrica, and is described and figured by Carrière in the *Revue Horticole*, 1892, p. 488, figs. 142-3.

Prunus Salzeri is nearly related to P. Padus and has pale yellow fruits. It is said to come true from seed, and is a native of Carinthia and Styria. It is cultivated at Zoschen.

Quercus Macedonica is described as "a magnificent Oak of the Cerris group, bearing large edible acorns." It is in the Kew collection. Q. Schochiana is said to be a hybrid between Q. phellos and Q. palustris. It is grown at Zoschen.

Robinia Neo-Mexicana, var. luxurians, is described by Dr. Dieck as a beautiful tree, taller than the type and with branched racemes, which were produced at Zoschen twice in the year, namely, in June and again in August, on the youngest branches.

London. *W. Watson.*

Cultural Department.

Snowdrops.

TREATING of the Snowdrops in cultivation in the order of their flowering, we have, as the pioneer of the genus, the early Galanthus octobrensis, blooming in Britain in October or early in November. This is a pretty but delicate flower, partaking of the character of G. nivalis, of which it is in reality only a variety or sub-species. This Snowdrop was first in-

troduced into this country by the late Rev. Harpur Crewe, who received bulbs from Lord Walsingham, who had collected them on one of the Albanian mountains.

Following Galanthus octobrensis are some others, which are as yet too rare, and have been too short a time in our gardens to make it possible to speak with any certainty of their average blooming time. Of these, G. Rachelæ and G. Elsæ are in cultivation, but are so rare as to be almost priceless. The former

Fig. 16.—A Girdled Pear-tree restored by grafting.—See page 93.

was collected by Professor Mahaffy, on Mount Hymettus, in 1884 or 1886. This was in leaf in Dublin in December, and I have a bulb, received under this name, which is also in leaf, but it is quite possible that mine may not prove the true sort, as there are several winter-flowering varieties at present going under the names of G. Olgæ, G. Rachelæ and G. Elsæ on the Continent. Of the authenticated G. Rachelæ there are very few bulbs in existence. G. Elsæ was in bud in Dublin in December, but it has been known to open earlier. G. Olgæ is at present in uncertainty. It was originally found on Mount Laygetus by Orphanides, but, unfortunately, on account of his sad illness, no further trace of it seems to have been found. G. Elsæ was brought from Mount Athos by Professor Mahaffy.

In all probability, however, it will be found that Galanthus Corcyrensis or præcox, said to have been sent from Corfu to the Rev. Harpur Crewe, is the Snowdrop which in ordinary seasons will succeed G. octobrensis. This flowered with me in the end of November, 1892, but it generally flowers from the middle to the end of December. This is a small but pretty form of G. nivalis, to which species G. Rachelæ and G. Elsæ also belong. It, like all the other autumn-flowering varieties, possesses the glaucous line down the centre of the leaf, which is a noteworthy feature of these varieties. There are several Snowdrops from Corfu, of which little can be said, for the sufficient reason that they have not yet been properly named, and in all likelihood some of these will be offered under the names of some of the rare varieties being inquired for. I have two bulbs from the Continent, as "received from Albania, and probably octobrensis." They are only in bud, and although of the autumn and winter-flowering type, it is likely enough, from their appearance, that they will prove to be bulbs of G. corcyrensis.

The next to bloom in our gardens is Galanthus Elwesi, one of the finest of our Snowdrops, although having the defect of failing in some gardens, and also of being weak in the stem. Mr. Allen, of Shepton Mallet, to whom, in a very great degree, the movement in favor of the Snowdrops is due, is endeavoring to raise seedlings of a more vigorous type, and it is to be hoped that he may be successful. G. Elwesi is very distinct, not only from the inner petals being arranged in a tube-like manner, but also from the dark green basal blotch extending to half their length. There is a very considerable variation in this species, and several superior forms are at present in process of selection. Mr. Allen has found some with the inner petals almost entirely green, and Mr. Boyd, of Melrose, has raised a seedling which flowered for the first time in 1892, and which is entirely white. According to Mr. Baker's *Handbook of the Amaryllideæ*, G. Elwesi was discovered by Balansa in 1854, but was only individualized in 1875 by Mr. Elwes. Mr. Baker gives February as the flowering period in this country, but I have found this species flowers very early in January, in ordinary seasons, with me. This season it is later than usual. Imported bulbs are, however, earlier, and have been showing flower from early in December. I have also under observation bulbs received from the Bithynian Olympus, and marked by my correspondent as probably G. Elwesi. The leaves, however, appear broader than those of Elwesi, which has been introduced from the mountains near Smyrna. I can find no note regarding the Galanthi of the Bithynian Olympus, and am in hope that I may find something near G. Fosteri among my bulbs. G. nivalis, our common Snowdrop, has proved much more variable than is generally believed.

Besides the various autumn varieties already noted, those which flower in spring vary considerably. Taking these varieties in alphabetical order, we have G. æstivalis, a very pretty and distinct little Snowdrop with bright green markings, and flowering much later than the type. I have had this for some four or five years, and find it very useful for cutting purposes. G.

Cathcartiæ, found, I believe, in a Scottish garden, is a form with twin spathes and no green markings on the sepals. G. flavescens has yellow markings on the inner petals and a yellow ovary. This was found in Northumberland by Mr. Boyd, and it is found a stronger grower than G. lutescens, which is of somewhat similar character, but with the yellow of a paler tint. This was also found in Northumberland, but in a different garden, and by Mr. Sanders, of Cambridge. G. major is said to be a large flowered form of G. nivalis, and is one which I only succeeded in obtaining last autumn.

Among varieties of G. nivalis, Melvillei, a seedling raised at Dunrobin Castle by Mr. D. Melville, has stouter and longer leaves and stem and large flowers. Pallidus is a pale green marked variety of rather earlier habit than the type. Poculiformis was originally raised at Dunrobin, but afterward found also in Wales. This has the inner perianth segments nearly as long as the outer, and the green markings are entirely absent. Reflexus does not seem to be in cultivation, but I understand the name is given on account of the inner segments being partly reflexed. A double form of this has been catalogued, but I have found it not forthcoming when ordered. Scharloki has twin leafy spathes and large green spots near the base of the outer sepals. Serotinus, another Dunrobin seedling, is a very small form, flowering even later than G. æstivalis. Virescens is more valued as a curiosity than for its beauty, the sepals being striped with green near the base and the inner petals nearly all green except the margins. The ordinary form of G. nivalis is well known, and, in addition, there are a few seedling doubles which have not yet deen distributed.

There are a considerable number of other forms of G. nivalis, varying in form, stature and markings, and it is highly probable that others will be found in gardens now that attention has been more widely attracted to the existing varieties. I have heard of plants of G. nivalis which were found near Galston in Scotland, and which had stems twenty inches in length and with flowers of proportionate size. The bulbs were lifted, and are being grown in order to ascertain if this large form will prove permanent, or is only due to exceptional soil or position.

G. Imperati, which is a sub-species of G. nivalis, has broader leaves and larger flowers. It is a native of Naples and Genoa, and, like the other sub-species, G. Caucasicus, has produced some fine varieties. Atkinsi is one of the finest of these, being of large size and purity of color. I am indebted to Mr. Allen for this variety, and for some others. Boydi is another very fine form, having flowers occasionally one and a half inches long. G. Caucasicus, which is the Caucasian form of G. nivalis, has broader leaves than the type and is later in flowering. According to Mr. Baker, this sub-species includes Redoutei, major, and Caspicus of Ruprecht. Mr. Baker also seems to consider G. virescens a variety of G. Caucasicus, although Mr. F. W. Burbidge only mentions it as a variety of G. nivalis.

G. latifolius, which flowers in this country in February and March, is a very distinct species from the Caucasus, with broad, shining green—not glaucous—leaves, and small white flowers one-half to three-quarter inches long, with only a green patch in the outside and inside of the inner segments. There is a fine variety of this called latifolius major.

G. Fosteri, introduced from Amasia in the province of Sirwas, Asia Minor, and named in honor of the introducer, Professor M. Foster, is one of our latest acquisitions, which has been the subject of considerable criticism, due to its presenting much variation. It is supposed to be a hybrid between G. latifolius and G. Elwesi, and has broad green leaves with somewhat similar markings on the flowers to those of G. Elwesi. The first of this which I bloomed gave me considerable disappointment, but other flowers caused me to modify my earlier opinions, and the best forms are well worthy of cultivation.

G. plicatus, readily recognized by its plicate leaves, is now fairly well known. It is a native of the Crimea, and, although not so well formed as some of the others, is valuable from its late-flowering habit, it being the last in flower. Several varieties are now in cultivation, some of these being seedlings and others selected forms. The first, Maximus, has long, narrow flowers, which, in favorable conditions, are quite two inches long. The other, Chapeli, has smaller flowers, but these are of fine form and with broad petals. Several hybrids raised between G. plicatus and G. nivalis, by Mr. W. Thomson, of High Blantyre, have been described, and Mr. Allen has another seedling apparently of the same origin, but not obtained by artificial fertilization.—*S. Arnott, in the Journal of Horticulture.*

Small Greenhouses.

AT this season, when greenhouse plants are mostly at their best, it always seems pertinent to make a plea for more small greenhouses. Such a building is especially indispensable where many plants are grown, if they are to be cultivated with the minimum of care and the maximum of success. Yet among amateurs of small or moderate means there is a general disinclination to build such houses, usually from the supposed expense. Of course, large amounts may be invested in fancy greenhouses, but examination of a commercial house, built plainly, according to modern methods, will show that such forms may be built on a small scale at a very moderate cost, the construction being simple and the material not expensive. The different horticultural builders offer small portable houses at a moderate price, but much cheaper greenhouses can be constructed at home with the aid of a carpenter, by one who is capable of planning the building. The cheapest construction is a space roofed over with cold-frame sash spanning an enclosure the walls of which are formed of two thicknesses of one-inch boards, with paper-lining between. Two rows of sash will make a ten-foot house and the length would be multiples of three feet.

Friends with whom I talk are deterred by cost of heating rather than the cost of building, and a cheap heater for greenhouses is needed. Great ingenuity has been wasted in devising schemes to heat conservatories and small greenhouses, which have proved to be mere make-shifts and would quickly be discarded if a satisfactory appliance of low first cost were to be had.

The patent base-burning heaters now offered by several firms are perfect appliances, but for a fifteen or eighteen foot house an outfit could scarcely be had under fifty dollars. A very good outfit may be made for much less by securing a round cast-iron stove, and having a smith bend an inch pipe in three or four coils to fit the inside, with ends passing through the side of the stove. These are to be joined with expanding fittings to two-inch pipe, the upper one for flow and the lower one for return. These pipes can be bought cut to proper sizes, and with white-lead in oil can be quickly and tightly joined. It is always well to have plenty of radiating surface, and if the house is exposed these pipes should be carried around three sides of it. At the ends furthest from the stove there will be needed an expansion-tank, and this can be made of a water-tight box or cask, into which the ends of the pipe may be inserted and packed with oakum. If one can secure a second-hand stove, such an outfit, with pipe at fifteen cents per foot, will not prove costly, and will give satisfactory results equal to a patented article. Of course, the stove must stand in a ventilated separate apartment, to avoid gas and dust, and must be capable of perfect regulation in the way of dampers. Hot-water circulation from coal heat is the only satisfactory way to heat such a house, and is also the cheapest. No doubt, houses are heated by coal-oil stoves with an infinity of care and anxiety, but there are numerous reasons why these are not permanently satisfactory. All coal-oil burners have a moderate length of life, and will eventually give off injurious fumes. It is very difficult to arrange a connection between a stove and outside air without back drafts, which are dangerous. One sees occasionally reports of successful heating of houses by coal-oil stoves burning in the open house with no outside connection. As the stove is a great consumer of oxygen, which is usually only too scarce in a greenhouse, it is difficult to understand this suspension of natural laws. Besides, the stove set in any part of the house naturally starts drafts toward it. If it is used to start a hot-water circulation the expense is, of course, equal to the fittings with a coal stove. It is unnecessary to say that, as compared with coal, the units of heat will cost more from high-test oil such as it is safe and pleasant to use. These remarks apply only to a greenhouse proper, where one wishes a night temperature of, say, fifty degrees in December, gradually rising to sixty degrees as plants commence to move freely. Such a house may be successfully run with the simple arrangement here described, and there will be spare heat enough to allow for ample ventilation in all fit weather. A coal-oil stove with proper outside connection will answer very well for houses from which it is only intended to exclude frost, but such a house is merely a storeroom for plants more convenient than a cold frame, but not such a place as is required for ordinary collections of plants or adapted to securing the greatest pleasure for the grower.

A type of conservatory or greenhouse common in small towns is that procured by enclosing a veranda. These places usually suffer from stagnant air, produced in the endeavor to heat them from the surplus heat of the dwelling. They offer

complications of their own in the cultivation of plants. A heater would tend to make them more satisfactory, and it is often possible to arrange the stove in an adjoining room in such a way as to utilize all its heat. The pipes, of course, will necessarily be elevated considerably above the floor of the conservatory, an arrangement which, with the help of bronze paint, need not be unsightly, and would prove entirely practical. This is a very fertile subject on which many amateurs could, no doubt, relate interesting experiences.

Elizabeth, N. J. *J. N. Gerard.*

Romneya Coulteri.

THE question has been often asked why this plant is so seldom seen in gardens in the east. Seeds are easily obtained from California, where this lovely Poppy grows, both wild and cultivated. I have often, in previous years, sown the seeds, but never succeeded in securing any plants. In response to the inquiry regarding R. Coulteri, in GARDEN AND FOREST, vol. iv., p. 392, a correspondent in California sent me seeds of 1890 and 1891, with the remark that they would probably take two years to germinate. It seemed a long time to wait, but they were sown in the fall of 1891 and have been kept watered ever since and wintered in a cool house. To my surprise, a few days ago, I found a few seedlings already up. Since giving a top-dressing of sand to kill a growth of Moss that had covered the soil, and a little extra warmth, the plants have come up in numbers, and I hope to grow and flower them here.

Much has been said of the beauty of this American plant in English periodicals, and it is not difficult to obtain the plant in England. I have not been able to procure it in the eastern states, presumably because the seeds sown did not come up as expected. I would advise those who have sown seed to wait patiently, for after two winters they are almost sure to germinate. It saves much trouble to know just when one may expect seed to germinate; seedsmen would confer a favor to their customers in stating this fact so far as they are able. At another time I should sow the seed in sound boxes, cover the soil with porous bricks and place the boxes under the benches in the greenhouse. This would prevent loss of seed by careless watering, and when they were expected to germinate the boxes could be placed where the young plants might have light and air.

It may be well to say here that the seeds of any plants that have been exposed to frost in cold frames may now be brought into warmth in the greenhouse, where they will germinate with certainty. This applies especially to seeds of Trollius, Antherícums, Gentians, Aquilegia glandulosa, A. cœrulea and their varieties; also to Dicentra eximia; all of which are perennials that should be sown only in fall, as nothing is gained by sowing now, and they would require care and attention all summer.

South Lancaster, Mass. *E. O. Orpet.*

Notes from the Harvard Botanic Garden.

KALANCHOE CARNEA.—Succulents are a class of plants which find scant favor in these days. It is to be regretted, for there are many admirable and meritorious things among them. K. carnea (figured in GARDEN AND FOREST, volume iii., page 53) is a recent addition to this class, and its introduction will perhaps serve to revive the interest in plants of a similar character. It was secured in South Africa by the Messrs. James Veitch & Sons, of London, in 1886, and since that time it has been given a fair share of attention. This has been well bestowed, for in beauty and utility the plant has proved to be entirely worthy. The erect stems are from eighteen to twenty-four inches high, and are amply furnished with elliptical, crenate leaves from four to five inches in length, and of a metallic green color. The flowers, borne in large compact terminal cymes, are of a beautiful pale pink shade, and deliciously fragrant. They appear in winter, lasting a long time, and they are most valuable for cutting purposes. Good turfy loam appears to be the main requisite in compost, but to this should be added a small proportion of leaf-mold and sand. A minimum temperature of forty-five degrees suits the plant admirably, but it likes all the light and sunshine that is to be had. It may be placed in a cold frame during warm weather, affording protection against heavy rains; for, although a moderate and regular supply of water is essential to its successful cultivation, a soddened condition of the soil is invariably baneful in results. K. carnea can be propagated from seeds or cuttings, and early spring is the best time for this work. A slight degree of bottom-heat is necessary in either case, and a loose sandy soil will be required at this period. More than ordinary care should be exercised in watering until the plants are well established, as they damp-off speedily when young if the soil is too long retained in a very moist condition, and also if the atmosphere be frequently laden with superfluous moisture. Plants raised from cuttings are more inclined to branch than seedlings; but the latter, if cut back after flowering to within two or three inches of the soil, will soon send out a large number of side-shoots, forming large, bushy specimens during the second season. Old plants, of course, make all the better progress if they are re-potted annually, and this should be done soon after the lateral shoots, which follow pruning, have made their appearance. The greater part of the exhausted soil must be removed from the roots in this operation, and the pots employed should be so small as is compatible with convenience, for the plants flower most freely when the roots are somewhat confined.

PANCRATIUM OVATUM.—The decorative character of this plant is sometimes said to be inferior to that of some other species of the same genus, but with us, nevertheless, it is decidedly beautiful when in bloom. P. ovatum has long been familiar in our greenhouses, so long, indeed, that the date of its introduction is veiled in obscurity. Miller, the celebrated English gardener and botanist, who flourished early in the last century, makes mention of the plant in his *Gardeners' Dictionary*, and it is known to have been cultivated by that worthy. It is a bulbous plant, with large, ovate, deep green leaves. The flowers are large and graceful, pure white and charmingly fragrant, and borne in immense umbels slightly above the foliage. They are Lily-like, the segments of the perianth being long and narrow, and the stamens prominent, with showy yellow anthers. The foliage alone is quite handsome in appearance, but when the flowers spread out in all their purity of color above the verdant mass, filling the surrounding atmosphere with the sweetest odor, the plant is certain to gain the friendship of all who see it. The flowers are developed, generally, in winter and spring; but this does not appear to be a fixed rule, for the plants occasionally start into bloom quite unexpectedly at other seasons. P. ovatum likes a moist stove atmosphere and plenty of water when in active growth during the summer months; but a smaller supply of water will suffice at other times, though the plant should never be dried-off, in the strict sense of that term. A suitable compost is found in strong, rich loam and well-decayed cow-manure—three parts of the former to one of the latter—and occasional applications of liquid-manure will be found highly advantageous. Hymenocallis ovata is another name for the same plant.

Cambridge, Mass. *M. Barker.*

Correspondence.

Fruit-trees Girdled by Mice.

To the Editor of GARDEN AND FOREST:

Sir,—While gathering material in October last for the state exhibit of woods at the coming Columbian Exposition, we chanced to visit a Pear-orchard, the trees of which years ago were badly girdled by mice. It interested us greatly, as illustrating the success of a method of repairing the damage done by the mice, and that others may know of it and possibly save their own trees threatened in this way, we ascertained what we could of its history.

The orchard is situated in the town of Ledyard, Cayuga County, New York, on property formerly owned by Mr. William Grinnell, a nephew of Washington Irving. We learned that, on the disappearance of the snows of a severe winter some twenty years ago, Mr. Grinnell discovered that mice had girdled nearly his entire orchard of a thousand fine young Pear-trees. As they had been set a few years, and were growing well, he was greatly dismayed.

He mentioned his loss to his neighbor, Mr. J. J. Thomas, of Union Springs, who was then in the nursery business near by, and particularly versed and skilled in grafting. Mr. Thomas told him that he need not at all despair of saving his orchard, and directed him to cut from young, vigorous Pear-branches, about as thick as his finger, pieces slightly longer than the section laid bare by the mice, and sharpen them wedge-shaped at both ends. After driving in a chisel at the upper and lower extremities of the exposed portion of the trunk, just at the edges of the bark, and in such direction as to receive the ends of the pieces, these pieces were sprung in by bending out the centre. A bridge was thus made to conduct the sap over the girdled portion. Two or more of these bridges were placed in each tree, the points of contact protected with grafting wax, and nature was left to do the rest.

The result was most gratifying, as Mr. Grinnell saved very nearly, if not quite, all of the girdled trees. The orchard has thrived and been very productive since, and it is interesting to visit it to-day and see the strange forms of trunks that it contains. Many of the trees were evidently repaired with only two cions, on opposite sides, and it was such a one which we photographed for the illustration on p. 91. In it may be seen the old original trunk as laid bare by the mice, about two inches in diameter, dead and dry, while the cions on either side have grown to ample size and support the tree above.

Some trees were found in which the useless original trunk had rotted away, leaving an opening through the base of the tree. Others had evidently been repaired with several cions, which had more or less grown together along their contiguous sides and made a thick, bulging base. A few trees contained but one cion, which had, however, proved sufficient to save and support it.

After visiting the orchard, we very much enjoyed a call upon Mr. Thomas, who, in speaking of saving girdled trees, remarked that it is a very simple and easy operation; that he had often practiced it and "had never known it to fail."

Lowville, N. Y. *Romeyn B. Hough.*

How to Use Seedsmen's Catalogues.

To the Editor of Garden and Forest:

Sir,—The seed catalogues of the year are out, and those who had hoped that the tendency shown for the last few years toward more candid description and truthful illustration would be carried still further are somewhat disappointed. Still, many of them are so full of useful information and beautiful illustrations that one enjoys looking them over, and a few hints as to how to make the best use of them may be acceptable.

We should always bear in mind that a variety which does the best of all under one set of conditions of soil, culture and climate and best suits the tastes and requirements of one man, may prove one of the poorest under another set of conditions and requirements. And seedsmen offer a long list of varieties more in an effort to meet the conditions and requirements of different customers than because many of them are necessary or even desirable in any one garden. For them to offer a single kind as the best for all would be as foolish as for a dry-goods merchant to have but one kind of cloth to meet the wants of all his customers. A variety becomes popular in proportion as it proves satisfactory in the hands of ordinary planters and under ordinary conditions. Every new variety offered by a reputable seedsman has proved, in the hands of some grower and under one set of conditions, to be superior to any with which the grower was familiar. In many cases, however, the novelty is judged superior because its producer had seen it under conditions favorable to this particular sort, and again, the producer may not have been familiar with the best strains of the old varieties suited to his particular requirements. A certain strain or stock of a standard kind often shows a superiority over the common stock which is more marked than the improvement shown in a new variety which is considered quite distinct.

The cost to the seedsman of growing the seed he puts into a twenty-five or fifty-cent packet of a novelty of his own introduction is often less than that of the seed he puts into a five-cent packet of the standard sorts. Again, the accident of a shortage of one sort and of an abundance of another may make the sale of the latter the most desirable. And as the catalogue is got up primarily in the interest of the seedsman rather than of the gardener, it naturally exaggerates the merits and pushes the sale of the most profitable sort. On the other hand, the seedsman who values his reputation will naturally take especial care that the stock of a kind he recommends is the best procurable, and the more common a variety is the less personal interest and pride each seedsman will take in maintaining its purity and quality.

Packet is a most indefinite term as to quantity. Of five packets of the same variety and price from different seedsmen the largest contained nearly three times as many seeds as the smallest. Seedsmen procure their seed from the locality where it can be grown to the best advantage, and the "northern-grown seed" of the man in Maine, the "home-grown seed" of the man in Nebraska, and the plain "seed" of the man in New Orleans are all quite likely to be grown in the same township in Canada, Kansas or California, and one might as reasonably expect to buy cheaper or better cotton-cloth at a retail store in New Orleans than he could in New York as to expect to get hardier seed from Duluth than from Philadelphia.

From these considerations are deduced the following considerations for making an order for the seeds of vegetables or ordinary flowering plants:

Decide upon the quantity of seed of each vegetable you wish to plant. From a combination of the descriptions of the standard kinds given in the catalogues of several seedsmen, not relying implicitly upon the statements or recommendations of any one, decide what variety or varieties will best meet your requirements and suit your conditions of soil, climate and culture, making the number of varieties as small as possible. One rarely needs more than three, an early, medium and late sort, and generally one is better than more. After thus making a list of your needs, decide, from the general character of their catalogue, your own and your neighbors' previous experience, and any other obtainable data, which firm is most worthy of your confidence, and elect them your seedsmen for the year. Now go through the catalogue of this firm, and if in any case they offer a superior strain of one of your chosen kinds, or a sort which for several years in the hands of their customers has proved an improvement, substitute it for the one on your list. Lastly, to the extent to which you can afford it, order trial packets of novelties or newer sorts which you think might prove an improvement on the kinds you have selected. An order made up in this way will certainly give more satisfactory results than to purchase the highest-praised and most attractively pictured sorts of a dozen catalogues.

Detroit, Mich. *Will. W. Tracy.*

Chinese Primroses at the Columbian Fair.

To the Editor of Garden and Forest:

Sir,—The principal midwinter attraction in the horticultural department of the World's Fair has been the Chinese Primroses. About five thousand specimens were shown, filling two greenhouses, each one hundred feet long by twenty-two wide. They have since been placed in the Horticultural Building, and are more accessible to the public. Though awards have been made, the names of those receiving them are not yet given to the public. Seventeen houses competed, six from this country, five from England, four from Germany, one each from France and Italy. The largest lots from America were those of Peter Henderson & Co., New York, R. & J. Farquhar & Co., Boston, and Henry S. Rupp & Sons, Shiremanstown, Pennsylvania. The exhibits from England were also large. Those from Germany were from Erfurt and Quedlinburg. Four hundred varieties, so called, were said to be shown, but many of these differed more in name than in fact, and half the names would apparently designate the real differences. There was, however, a great variety in the plants as a whole, both in the color and size of the flowers, and in the foliage and general appearance. All were labeled Primula Sinensis fimbriata, and flowers without fimbriate margins were exceptional, the greatest number of these being on plants with crisped leaves. As the plants were started from seed sown about the middle of April last, and cultivated under the same conditions, they came into flower essentially at the same time. It was a brilliant display of colors, mostly of the red, white and blue series and their combinations, and caused many exclamations of delight from visitors.

From so much that was excellent it is not easy to choose. The plants from R. H. Cannel & Sons, of Swanley, Kent, were remarkably thrifty, with large flowers and well-developed trusses. Cannel's Pink impressed one as the finest of the lot. It resembled the Queen, with flowers about as large on the average, but of a more decided pink. The leaves are of medium size, arranged so as to set off the flower-cluster well. The stems were very strong at the base of the cluster of leaves, with no tendency to fall to one side when the pot was tilted. The scapes are not tall nor the flowers numerous, but they rise far enough above the leaves to show effectively, and offer a charming mass of delicate pink, though the petals are a little multiplied; they lie so nearly in a plane as to give the flowers the simplicity which is liked by most persons in the blossoms of the Primrose, for those much doubled by the crown of leaves at the throat looked somewhat disheveled even when at their best. Some flowers of the Queen, in the same collection, were the largest noticed in the whole exhibit, measuring fully two and a quarter inches across. Fine flowers of the Queen were also shown by James Carter & Co., High Holborn, London, and by other exhibitors. Other good plants from Swanley, were Swanley Giant, a large rose-colored variety, White Perfection, Princess Mary, a large white with leaves of extraordinary size, Lilacina, exquisitely variable in color, with

delicate tints of lilac-blue. This and White Perfection were of the long-leaved kind.

The purest white seen was in the exhibit of Vilmorin-Andrieux et Cie., Paris. It was appropriately named Purity, being perfect in its tone of white. The flowers were of good size, though not of the largest, the truss well placed amid green leaves on purple-stems. Many flowers of Mont Blanc, in the same lot, were nearly of as pure a white, but some were faintly blushed with pink, as were some good ones of this name in the exhibit of William Bull, Chelsea, England. The Avalanche, from Mr. Bull, was a large and beautiful white, one of the best. Another good white, Filicina alba, was in the exhibit of Henry Metle, Quedlinburg. The plants were tall and strong, abundant bloomers, flowers of fair size, and Fern-leaved foliage. Other good strains in the sets from Paris were Grand Rose and Grand Blanc Carné, both large-flowered, the pale corolla of the latter with a flush of pink. In the exhibit of Mr. Bull may also be mentioned Pink Beauty, a very handsome pink, with flowers of medium size, those on the lower branches too much covered by leaves for the best effect; Comet, a showy red; Fulgens, a bright red, with the margins of the petals a little dotted with white, and slightly of the punctate order.

In the exhibit of John Laing & Sons, Forest Hill, London, were a number of good double-flowered kinds. Macros alba plena showed pinkish white flowers and long leaves. Marmorata plena was a double reddish white, the flowers prettily splashed and colored with red or dark pink. The best red in this collection, Chiswick Red, carried very large flowers of a rich dark red, inclining to purple, the greenish eye encircled with a narrow band of white. They were fine, thrifty plants, with large leaves and prolific umbels. The same strain in the lot of Farquhar & Co. was about as good. Crimson, sent by Kelway & Son, Langport, England, was another very bright red, and Vermilion, from Carter & Co., red, and a little punctate. The Dark Red of Rupp & Son showed well. There were several reds of the Kermesina sort, some quite coppery, and with slight metallic reflections. These, with the salmon-reds, carmines, scarlets, purples and other shades, showed the multiplicity of tints into which the color of the original stock had been varied. Dainty flowers of the punctate kind were frequent, with two or three rows of white dots quite regularly placed near their margins, but occasionally scattered. The flowers were generally small, but abundant.

There were blues and lavenders in most of the exhibits which attracted much attention. It is barely ten years since the blue race of Chinese Primroses with fringed corollas was established, but the display here made shows that the color is fixed, and comes true from seed. Carter & Co. showed two excellent kinds, London Blue and Porcelain Blue, both large-flowered. Haage & Schmidt, of Erfurt, had fine ones labeled Cœrulea. Another was the Blue of Vilmorin-Andrieux & Cie., with purple foliage.

A few sets were seen of a different character, the flaked or striated. They were mainly white-flowered, with lines and spots of various shades of red, in form and size varying from dots and lines to spots covering a petal or even half of the corolla. The colors were mostly too irregularly placed to be harmonious and pleasing, but may point the way to some striking variegated forms. Some plants in the exhibit showed possibilities of yellow flowers by enlarging the yellow of the throat. One in particular was noticed, Oculata lutea (Laing & Son), a singular form of this character, having a large yellow spot enclosed by a border of white or white tinged with red. Even the foliage had a yellow cast.

The most peculiar exhibit was that of Hillebrand & Bredemeier, Italy. They were very distinct in foliage, with leaves remarkably crisped, their lobules having the parenchyma very full, so as to be formed into a frill or ruffle. To some extent this characterizes the calyx also. The leaves are symmetrical in form, from oval to oblong or a little obovate in some cases, their color varying from pale green to dark purple. They are beautiful-leaved plants, as handsome and decorative in their way as are the fine-flowered kinds. The flowers are generally single, mostly small, and often without the fimbriated margin. One of the most crisped was Candidissima, white-flowered and with purple foliage. Carnea has flesh-colored corollas, the yellow eye enlarged and star-shaped, and the foliage green. A view of these plants led one to think that the perfect Primrose would be one combining the crisped leaves of the Italian growers with the fine flowers seen in the collections from northern Europe.

Too much praise can hardly be given to Mr. John Thorpe for the cultural skill which has brought forward this immense collection in such uniform health and vigor.

Englewood, Chicago, Ill. *E. J. Hill.*

The Forest.

The Forests and the Army.

THE establishment of five national parks by acts of Congress, and the setting aside of six reservations of forest-lands by the proclamation of the President, covering 3,252,360 acres, necessitates the adoption of some well-defined method for their care and protection. The reservation of forest-lands surrounding the head-waters of our great rivers is an important gain and a most beneficial act; but unless some plan is matured at once for their government and protection, the trees are liable at any time to be destroyed by fire or the axe of the plunderer. Requisition has already been made on the army for the protection of the parks, and it is to the army again that we must turn for the preservation of these new reservations, at least until Congress can find the time to pass some law like the Paddock bill, Senate, 3,235. Until suitable laws are enacted it is evident that the army must be our chief reliance; and even under so comprehensive a measure as the Paddock bill the assistance of the army would often be needed. Brigadier-General Ruger, of the Department of California, under date of September 8, 1891, writes: "In view of the probability that for convenience, if not from the necessity of the case, troops will for some time to come be employed to protect from damage the large tracts of country like the national parks, set aside for specific objects, it is desirable that general necessary rules applicable for all the parks should be made, preferably by statutes, with suitable penalties for infringements, and that the powers of the troops employed in the enforcement of rules for the protection of the parks be more clearly defined."

Even should suitable forest-laws be enacted, the question arises, Would it not be well for at least some portion of the army to have a knowledge of the general principles of forest-management? If this is desirable it can be accomplished in no better way than by the introduction of text-books on forestry and instruction on that subject in the post schools. By general orders from headquarters of the army, dated October 7, 1890, the methods of management and instruction in these schools were left to the discretion of post-commanders under such special instructions as department-commanders might deem essential, and the latter were intrusted with the duty of the selection of text-books. The general sentiment of the officers directly interested in this matter, as well as of those responding to the circular of inquiry, is in favor of a uniform course of studies prescribed by the War Department under a general system and with fixed rules for exemptions and rewards, and for qualified teachers, to be suitably remunerated. That the maintenance of a post-library, containing a judicious selection of interesting and instructive books, is a positive benefit to the enlisted men and becomes an important factor in improving the morale of the army, is too evident a proposition to need argument. *

Some of the results of Lieutenant Reber's non-commissioned officers' school at Fort Meyer, Virginia, are interesting. He regrets the lack of proper text-books, and then goes on to give an example of work done. Hasty sketching was explained at full length, and detailed instruction given in the use of the various topographical signs, use of instruments and plotting of a hasty survey. Then the class was divided into parties and sent into the field equipped with box and prismatic compasses, and the road in the vicinity of the post surveyed and plotted. The various maps were then condensed into one large map by two members of the class.† Although a majority of the men had never before seen a compass, the work proved most satisfactory. Here we see what can be accomplished with a class of ignorant men by an able and interested teacher. Quoting again from Lieutenant Reber's report, he says: "The unquestioned necessity of a larger scope in their instruction being admitted, I can see no better way than to unite the non-commissioned officers of each battalion into a class under a competent instructor and to follow a course prescribed by the War Department."

If the care of the forests on the public domain is to be assigned to a portion of the army, why may not the War Department include the study of forest-conditions in the larger scope of instruction? It would be a subject likely to interest many of the men, especially if it were known that some forestry work would probably be a part of their duties. It has been said in some quarters that the soldiers object to the work assigned them of protecting our public parks. I have yet to hear of any well-grounded proof of this report.

Whatever may be done respecting the army, there is impera-

* Report of Adjutant-General J. C. Kelton, October 1, 1891.
† Report, March 23, 1891.

tive need of further legislation by Congress for the preservation and care of our forests, leading to some system by which the trees on certain tracts shall be preserved, and in other places cut down under suitable restrictions.

My conclusions are: 1. That text-books on forestry and kindred subjects should be placed in all the army-post libraries. 2. That instruction should be given to the non-commissioned officers, wherever possible, in forestry and collateral studies by competent teachers. 3. Forestry and the related sciences should be taught at West Point until a national forestry school is established by the United States Government.

North Andover, Mass. *J. D. W. French.*

Notes.

The name of the Cineraria comes from the Latin cinis, cineris, meaning ashes, and refers to the whitish down which covers the leaves of the plant.

The *Morning News*, of Wilmington, is authority for the statement that a Spanish Oak was lately cut on the land of Mr. F. T. Warrington, near Georgetown, Delaware, which measured eight feet across the stump and from which he obtained a stick of timber sixty feet long, which squared two feet throughout its entire length.

One of the least famous monuments in New York is the statue of Washington which stands on the Riverside Drive near the foot of Eighty-eighth Street. Yet it deserves attention more than most of our statues, for it is a copy of the one which was executed by the great French sculptor Houdon, in the year 1785, and now stands in the State House at Richmond, Virginia.

The Journal of Horticulture shows an interesting picture of Tinnea Æthiopica, a beautiful winter-flowering plant, too little known, and belonging to the Labiatæ. Not only is it elegant in habit, and the flowers richly and distinctly colored, but they also possess a delicious fragrance very strongly suggestive of Violets, so that a few specimens in bloom will agreeably perfume a moderately large house. The corolla is two-lipped, the lower lip being of a fine maroon color, and the upper one more of a rich crimson hue. The calyx is large, slightly inflated, and pale green. The flowers are freely produced in axillary clusters at the upper portion of the shoots.

In bulletin No. 22 of the Mississippi Experiment Station some interesting trials with Grapes, with careful explanations as to the method of cultivating them, are recorded. It seems that the Vine is perfectly at home in that latitude and that it bears well even on rather wet ground. Common Vine diseases are not specially destructive and the much-dreaded Black Rot is not prevalent. Another disease, however, which is called the Ripe Rot, or Bitter Rot (Melanconium fuliginium), is a rather serious enemy which the copper compounds as yet have failed to prevent. July is the season when the grapes ripen in Mississippi, and the wet weather which usually occurs then seems to aggravate the trouble. It continues to develop on the fruit after it is picked.

From the January issue of the *Quarterly Bulletin of the University of Minnesota* we learn that the plant collections of the botanical department of the university are united with those of the botanical division of the Geological and Natural History Survey of the State, under the direction of Mr. Conway MacMillan, the state botanist. The field-work of the botanical division of the survey was specially directed during 1892 to completing the representation of the flowering plants of Minnesota, the Ferns and Fern allies, Fungæ and Algæ; and the collection is now believed to be reasonably complete so far as relates to the higher flowering plants, although it is said to be still deficient in well-filled series of Mosses, Liverworts, Lichens, Algæ and Fungæ.

The abrupt faces of the cliffs which form certain parts of the shore of the Isle of Wight yield a harvest of useful herbs, to be gathered with difficulty and danger. The most important of them is the Samphire (Crithmum maritimum), which has fleshy leaves and pallid, odd-looking flowers. Very dangerous parts of the cliffs are sometimes scaled to procure it in quantities, the plants as they are picked being dropped into a boat lying below. Occasionally one man undertakes the work alone, but usually two or three engage in it. The one who is to descend ties around his body a rope which is fastened to a crowbar securely planted at the edge of the cliff, and holds another by means of which he can signal to his fellows above. When he shakes this they haul at the safety-rope, and he assists their efforts by climbing up it, hand-over-hand. The most difficult part of the feat is when the top is reached, and he must unfasten the safety-rope in order to pull himself over the slippery verge.

From the publishers, Messrs. Vilmorin-Andrieux & Cie., of Paris, we have received *Les Plantes de Grande Culture-Céréales, Plantes Fourragères, Industrielles et Economiques*—an enlarged edition of the catalogue of these plants first issued by this house more than thirty years ago. The present work, a volume of two hundred pages, contains carefully prepared descriptions from the pen of the head of the house, Monsieur Henry L. de Vilmorin, of the principal species and varieties of plants employed in agriculture, illustrated with excellent figures reproduced from drawings by Monsieur Godard, and accompanied by cultural notes. As the author points out, in his short introduction, the races and varieties of cultivated plants are changing with such rapidity that many, like most Potatoes, for example, which are now most valued and most generally cultivated, were not known fifteen years ago. This necessitates the frequent rewriting of books of this character, which, to be of any practical value, must be based on careful experiments and close observation; that the present work is written in this spirit and that its authority is unquestionable no one will doubt who is familiar with the scientific methods and conscientious research which mark Monsieur Vilmorin's previous publications.

We have, in former numbers, quoted from Mr. Hale's instructive talks on peach-growing, but we add here a few disconnected paragraphs from his address at the recent meeting of the Western New York Horticultural Society on the subject of which he is so thoroughly a master. Elevated lands have returned the most fruit-crops, and the heaviest fertilizing with potash and phosphoric acid, with the least nitrogen, have given the healthiest growth. By severe pruning and high fertilizers he has succeeded in forcing a tree which was attacked with yellows to produce one or two good crops, but afterward the tree would suddenly die. His practice now is to root out such a tree as soon as it shows any symptoms of the disease. He prunes so as to make a low, broad tree with an open head until it comes to a bearing age. No pruning is done until the buds begin to swell in spring, and if none of these buds have been killed then the tree is pruned with care as to its form. But if many of the buds are killed the aim is to cut these away and leave the living buds. This practice has resulted in giving some very bad-shaped trees, but very profitable ones. The fruit is always thinned so as to leave no specimen within six inches of another. Experience has shown that a well-developed tree, which will bear six baskets of fruit, will bear just as much if half of the fruit is removed. If two-thirds are removed there is a chance of getting seven or eight baskets of fruit and two or three times as much money for it. The fruit is left on the trees until thoroughly ripe, though not mellow, and then it is sorted into three grades, packed into the cleanest baskets possible, and no defacing is allowed. To judge whether the fruit is ripe enough to pick, a branch is lifted carefully and then the most shaded spot on the peach is examined, and if that has begun to tinge then the peach is fit to gather. The white first varieties seem to be the most hardy, and Mountain Rose and Keyport White are the best of these. Hill's Chili is the best of the yellow varieties, but if it is not well-grown it will be so woolly that it needs shaving before being sent to market. When thoroughly thinned, however, the fruit is admirable, and it is the best of peaches to can. He uses about a ton of fertilizers to the acre, broadcast always, and applied every year from the time the trees are first set out. Two parts of bone to one of potash is about the proportion of his mixture. Stable manure makes too coarse a growth.

Catalogues Received.

E. F. Brockway, Ainsworth, Ia.; Evergreen Seedlings.—D. M. Ferry & Co., Detroit, Mich.; Illustrated Descriptive Catalogue of Choice Vegetable and Flower Seeds, Fruit Tree, Forest Tree and Hedge Seeds, Grass and Grain Seeds.—Lord & Burnham, Irvington-on-Hudson, N. Y.; Large and Handsomely Illustrated Catalogue showing Greenhouse Structures designed and erected by the firm and representing types of houses varying from simple to the most elaborate.—William Parry, Parry, N. J.; Small Fruits, Fruit and Ornamental Trees.—Parsons & Sons Co., Kissena Nurseries, Flushing, N. Y.; Deciduous Trees, Shrubs, Vines and Creepers, Evergreen Trees and Shrubs, Hedge Plants, New and Rare Hardy Plants, etc.—Carl Purdy, Ukiah, Mendocino County, Cal.; Wholesale Price List of California Bulbs.—Vilmorin-Andrieux & Cie., 4 Quai de la Megisserie, Paris; General Illustrated Catalogue of Grass, Vegetable and Flower Seeds, Catalogue of Cereals, Forage-plants and Plants for Food and Industrial Purposes. Beautifully printed and illustrated.